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German Transportation and Communication

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WE shall discuss transportation in Germany in its three phases: (1) the prewar condition; (2) its development during the war, and its collapse; and (3) a look into the future, with the possibility of reconstruction.

When a state of war was declared in Germany on the second of August, 1914, German transportation had reached its zenith. The network of German railroads with its 35,000 kilometers of main lines, 18,000 kilometers of branch lines and 11,000 kilometers of third-class railroads exceeded that of every country in Europe, even including European Russia, and ranked second only to the United States of America. With its 137 kilometers of railroads to each 100 square kilometers of area, Germany was exceeded only by Belgium in smallness of mesh in this network of railroads.

The state began to take over the railroads about the middle of the seventies, and by 1913 the main and branch lines had become predominately state railroads. These state roads with their 58,975 kilometers of track were divided into eight separate companies, which were, however, obviously of varied size. The main and branch lines were under the supervision of the Empire; the construction and operation in the most important essentials were never uniformly regulated. The state roads had essentially uniform passenger and freight rates, uniform liberty of trade and despatching rules; a state railroad freight car company was formed to take care of

the freight service, thus permitting unlimited use of freight cars in and outside of Germany. Then again, international agreements on technical uniformity make the use of passenger and freight cars possible on all the standard gauge tracks of entire Europe, and freight service was controlled by international conventions of freight service. An international agreement on railroad passenger service was also being worked out.

So far as technical traffic efficiency and economic results are concerned England was superior to Germany in the speed and frequency of its passenger and freight traffic; France, in the model organization of its express train service between large cities, in its suburban and local service, and partly also in the quickness of its express train connections, as well as in the financial returns of its large private railroad systems; Belgium, in the model method of transporting its laborers and in the elaboration of third-class lines; the United States in the vastness of its technical apparatus and equipment; above all in its colossal passenger traffic, its low freight rates and in the comforts of its passenger service.

But concerning comfort of travel, low passenger rates, especially for the poorer strata of the population, painstaking adaptation of freight rates to the needs of economic life, spacious and imposing railway stations, safety and punctuality of train schedules, the well thought out development of administration and the absolute relia-

bility of its officialdom—in all these respects Germany was second to none in the world.

Germany's position in the heart of Europe made the perfecting of a competitive international express train time-table an economic necessity. Her best trains, the two eight and one-half hour express trains which stopped only twice between Berlin and Munich, a distance of 677 kilometers, were exceeded in speed only by America's best transcontinental limited trains.

With it all, however, passenger and freight rates fell consistently. The average income of German railroads was as follows:

Passenger—Kilometer		Ton—Kilometer
Pf.		Pf.
1840		8.
1876	3.65	5.
1886	3.29	4.08
1913	2.37	3.58

The freight on coal was 2.4 pfennigs per ton kilometers. In the United States it was only 1.99 pfennigs.

Although during the twenty-five year prewar period the average passenger rate has decreased by 43 per cent and the freight rate 41 per cent, nevertheless the total increased earnings for passenger and freight service have been tripled. The total receipts of German main and branch railroads (exclusive of the loops) in 1913 amounted to 3.42 billion marks and the expenditures, 2.42 billion marks. The receipts in the twenty-five years preceding the war were tripled, the expenses quadrupled. Nevertheless, the interest on the money invested in the railroads (19 billion marks 1913) rose from 4.7 per cent to 5.8 per cent. The returns from the investments thus improved quite considerably at a time when operating expenses went up and rates went down: a gratifying result of progressive simplification of management and technical improvement, but

chiefly as the result of the law of volume of business, for increase in traffic means fuller utilization of equipment; business grows, prices drop, profits increase.

The earnings were used primarily to pay interest on railroad bonds, to retire bonds and to increase invested capital. So, in 1913, the liabilities of the German state railroads were only two-thirds of the invested capital, besides other sinking funds; and yet they could pay considerable amounts to the general support of the state.

The German third-class lines owe their origin to the quarter of a century preceding the war; 10,900 kilometers of roads, capitalized at 816 million marks, had a total annual operating income of 72 million marks.

Besides the main, branch and third-class lines there are also 5,300 kilometers of street railways for municipal service, in addition to the street railway express trains. Besides Berlin and Hamburg, the manufacturing district of Barmen, Elberfeld and Vorkwiel has the famous monorail express.

The reason for the favorable development of German transportation is to be found first and foremost in the favorable development of general economic conditions. But, like its cultural and economic development, so also the development of its railroads was favored by the coexistence of a number of separate and independent institutions which in turn were united into an economic unit. In this way, German transportation secured for itself the advantages of a large-scale operation without surrendering the advantages of competition.

Competition between the large state railroads was, to be sure, not entirely free and unrestricted, but was kept alive in all essential respects. The railroads competed with each other in

obtaining business traffic, and, in addition, the matching of brains for highest efficiency, both technical and economic, was an important impetus to the perfecting and the diminishing of the cost of operation and of traffic in Germany's transportation system.

Germany also ranks prominently in the development of communication on streets and highways. The bicycle is the successor of the treadwheel of Chief Forester von Drais of Baden. Instrument-maker Fischer of Schweinfurt improved the treadwheel by giving it pedals and later on ball bearings.

The automobile with combustion motor also owes its origin to German inventiveness. The highest speed record ever attained by any vehicle on a street was made by an automobile in Florida in 1913 when it covered 228 kilometers in an hour.

In 1913 in Germany there were 93,000 autos, including 9,700 motor trucks and 22,000 motorcycles. The automobile as a means of opening up the most remote parts of Germany to commerce has attained great importance. In 1913 in Germany there was 1 kilometer of motor bus lines to every 11 kilometers of railroads.

The growth of Germany's economic, social and intellectual life is reflected in the development of its telegraph and postal systems in the last decades preceding the war. Before the outbreak of the war Germany did the biggest postal and parcel post business in the world, and it ranked next to the United States in the number of post offices. Its network of telegraph lines was greater than that of any other country, although Great Britain surpassed it in the volume of business. England controlled the majority (52 per cent) of all submarine cables, whereas Germany had only a modest 8.3 per cent. On the other hand, Germany possessed at the outbreak of

the war seventeen wireless stations—more than any other European country, but far less than the United States. Germany preferred the *Telefunken* system, whereas the other countries used the Marconi system.

German mail steamers were an important part in the world's postal service. Germany played a prominent rôle in the founding and development of the International Postal Union and the Universal Telegraph Company, in the international regulation of wireless telegraphy.

The total receipts of the postal and telegraph service were, in round numbers, 900 million marks in 1913; expenditures, 800,000,000 marks, leaving a net profit of 100 million marks. It had been a fundamental principle of the administration to use the profits in the greatest possible improvements to business. One of the chief uses to which this money was to be put was the further extension of 10 pfennig postage between foreign countries. The war, however, has frustrated their plans, probably for a long time to come.

Germany's navigable waterways are approximately 10,000 kilometers long, one-seventh of the length of its railroads. On these waterways about 19 billion kilometer tons were transported, or approximately about one-third of the railroad transportation. Large canals were built during the last prewar years, and in the first years of the war. Foremost among these artificial waterways is the canal connecting the North Sea and Baltic Sea, 98 kilometers in length and navigable by the mightiest of ocean-going vessels. Among inland canals may be mentioned the Dortmund-Ems Canal, the Rhine-Wehr Canal and its extension to Hanover, the canal connecting Berlin and Stettin and the Weichsel-Oder Canal.

Before the war Germany occupied a favored position among the maritime nations of the world. Its merchant marine with 3.2 million gross registered tons occupied third place, after England and the United States. Germany laid special stress on transatlantic lines. It spun a network of mail-passenger-freight steamers over the entire earth, as over against England's favorite tramp steamers.

Germany's steamship companies, headed by the Hamburg-American and the North German Lloyd lines, fostered communication primarily with the United States, and thanks to the comfort and the excellence of the steamers, and the painstaking efficiency and absolute reliability of their crews, these companies enjoyed the greatest popularity in transatlantic service. At the beginning of the present century their fast steamers snatched the "Blue Ribbon of the Seas" from the English merchant marine. Later they copied the English type of combined freight and passenger steamer, the result of which was the well-known giant palatial steamers, the *Imperator* and the *Vaterland*, for these steamers eclipsed everything up to this time in gigantic dimensions and luxurious comfort.

And so, during the long years of peace, Germany used a considerable part of its national resources in the development of means of communication and traffic, and in the peaceful competition with all the civilized nations of the earth it ranked foremost in every domain of transportation and communication.

We have discussed the condition of German systems of transportation and communication before the war in such detail in order to show the magnitude of the loss which Germany and world commerce have suffered through Germany's unparalleled collapse.

IN THE WAR

The brilliant development of Germany's industry and commerce during a period of forty years of peace was abruptly destroyed by the outbreak of the world war. Delightful vacation weather had again mobilized millions of peaceful citizens during the last days of July, 1914, and summer travel was at high tide when on July 31, a state of war was declared in Germany and on August 1 mobilization was ordered. Within the short space of a few days the hundreds of thousands, who for weeks had crowded the trains, had to be taken back home. At the same time, the troops were called out and had to be conveyed to their barracks and the first army moved to the borders. Never had such a colossal task been attempted. The military railroad time-tables went into effect at midnight of August 3 and 4. An army of a million men, such as the world had never yet seen, together with all its technical equipment, was to be conveyed across the borders in the shortest time. The advance was completed by August 21, and now freight and passenger service, which had practically ceased meanwhile, was again to be renewed. At the same time, the conveying of reinforcements in food, war material and troops, as well as the bringing back of the sick and the wounded, of captives, war booty, and of worn-out war material had to be accomplished.

The larger the war zone, the more gigantic the transportation problem became. In addition to the operation of home network of railroads, there were thousands of kilometers of railroads to be operated on foreign soil, equipped with German rolling-stock and manned by German crews; in many instances new roads had to be built and put in operation. The railroad network in the war zone grew

daily with the advance of the German troops and the Allies. Finally, there were German railroads as far as the Gulf of Finland in the north, the Black Sea, in the Caucasus, in Bagdad and Palestine in the east, on the Adriatic in the south, and at Ostend, and 60 kilometers from Paris in the west.

Because the enemy in their retreat were hitherto able to get their locomotives back in safety, and because Russian broad-gauge railroads were changed to standard gauge, almost all of the transportation of troops, etc., had to be done by utilizing the rolling-stock of the central powers. At the same time, in the war, with its three or four fronts, it was necessary to use the interior lines to the utmost. Whole armies had frequently to be moved within a few days from eastern Europe to the western front, or hastily transferred from northern France to Italy.

International traffic dared not cease. Far-reaching changes in freight routes resulted. The result was decisive changes in the handling of traffic. As a result of the blockade of the Central Powers the traffic, which had been from south to north, now changed to a west-to-east direction.

Food, raw materials and manufactured goods had to be distributed through the interior of Germany and central Europe. Enormous were the demands resulting from the necessity of supplying the Allies with equipment and coal, and of exchanging coal for food with neutral Switzerland, Holland and Denmark.

The manufacture of material for the army had to be taxed to the utmost, and the hundreds of mills and factories which had to be erected had to be provided with building and operating materials. Masses of laborers had to be carried to the mills and factories, the multitude of soldiers on leave had

to be carried home and back again to the various fronts, not to mention the travel of business men from all parts of the Empire to the central boards in Berlin. Rolling-stock had to be used and abused as never before in times of peace. There was a lack of crews, of labor in the factories, and a want of material for the maintenance of and service to railroad yards and operating equipment.

Supplies of all kinds such as petroleum, lubricating oils, rubber, copper and tin gave out. Many other articles necessary to operate railroads were depleted, while poor and unsatisfactory substitutes made operation of the railroad still more difficult.

The railroads were reduced to a third of their personnel, some of the employes going into the service, while others were transferred to operate the roads in occupied territory. The railroads at home had to get along with women and inexperienced substitutes. Gradually the difficulties became of gigantic proportions; and, in spite of the shortage of food which was becoming daily more acute, everybody in the entire nation down to the last female laborer was doing his or her utmost.

In order to handle the freight traffic, passenger and especially express trains were reduced to a minimum, and rates on express trains were doubled. There was no let-up in the acquisition of equipment; in fact, it actually increased during the war. Prussia alone in 1917 had 4,900 new locomotives and 129,000 new freight cars. The remaining state railroads had increased their rolling-stock proportionately. Prussia in 1917 had 30 per cent more locomotives than in peace time. In 1917 the total income of the German railroads was almost 4.7 billion marks.

It is scarcely worth mentioning that other branches or fields of communi-

cation had to meet demands similar to those of railroads. After much serious thought, it was found possible to coördinate railroad and steamship traffic.

The waterways in the occupied territories, *e.g.*, the network of canals in Belgium and shipping on the Meuse, were again opened and operated. Tugboat service with steam locomotives through *das Eiserne Tor* made shipping on the Danube possible and handled the traffic between the West and the East in the industrial area of the central powers.

In full recognition of the importance which will be attached to these waterways after the war, the Rhine-Main-Danube River Union was founded in the year 1917, and with the coöperation of Bavaria, the German nation and the interested cities, the prospect for a deep draught canal between the Main and the Danube was developed. [Cf. Art. 353 of the Treaty of Versailles.]

Shipping on the seas ceased almost entirely during the war. Except a few lines to seashore resorts (*Seebäderlinien*) there was no traffic anywhere except in the Baltic, where it was necessary to send coal to Scandinavian countries and bring back ore and food.

THE COLLAPSE

The year 1918 witnessed a large increase in railroad area in the east, but as a result of the armistice and, later on, of peace with Russia and Roumania, there was no increased demand on the railroads. On the other hand, the demand on the railroads in the west and in the interior of Germany was increased enormously. With the entrance of the United States into the war with its fresh troops and tremendous supplies, the success of the German offensive was gone. Of our Allies, the first to succumb was Bulgaria, then Turkey and finally Austria

and Hungary. Germany was forced to sign an armistice with unprecedentedly severe conditions. At the same time, revolution broke out in Germany and Austria.

The German armies in the west had to be brought back across the Rhine with precipitate haste, and enormous quantities of war and railroad material had to be left behind. The outbreak of the revolution broke up discipline among the troops who were returning home in swarms. Unparalleled were the demands on transportation in repatriating the troops from the front and the *étapés*. Rolling-stock had seldom been used so extensively and depreciated so much as during these months of travel homeward. To all these was added another demand on the railroads—the hurried return of prisoners-of-war to the western powers.

In this period came also the carrying out of the rigorous conditions of the armistice. Germany had to surrender 5,000 locomotives, 150,000 freight cars and 5,000 motor trucks. Moreover, Germany had to surrender to France all the rolling-stock and equipment of its railroads in Alsace-Lorraine; and also all its railroad equipment on the west bank of the Rhine. Little of the equipment used by Germany in operating the railroads in occupied territories in the east had been returned as yet, and large quantities were never returned.

Traffic difficulties increased prodigiously. Time-tables for passenger service, whose kilometric efficiency even during the war had never fallen below 50 per cent of its peacetime efficiency were now only 40 per cent of their former train-kilometer service. The result was that passenger trains were dangerously overcrowded and the time-tables for freight trains were totally disrupted. The manufacturing industries could not be supplied with

coal; many plants were shut down, and the consumption of gas and light had to be cut down to a minimum.

Eight million soldiers, in round numbers, had to be brought home in three to four months. Readjusting them to their regular occupations was impossible without shock to the entire economic life. The number of unemployed increased mightily. They became a dangerous radical ferment among the laboring classes who were exhausted by the length of the war and the strain of service at home and at the front, bitterly disappointed in their hopes and suffering horrible privation. The eight-hour day had to be introduced on all the railroads; the number of days off *Ruhe und Urlaubstage*, had to be increased, piecework and bonuses abolished, enormous increases in wages granted through new traffic rates, and these wages raised again and again. The railroad employes had to be granted increased wages by reason of increased cost of living, official positions had to be increased in number and new perquisites introduced or made essentially more favorable to the employes.

The continuous increase in wages of the masses of the laboring classes forced up the prices of everything, and more especially of the most necessary raw materials, like coal and iron, and of the meagre supplies of food. The laboring classes tried in vain to meet the growing high prices by demanding increased wages. The new increase in wages caused a rise in prices and so the cause became effect and the effect cause in increasing wages and prices in a geometrical progression. In order to meet expenditures in state and nation more paper money had to be circulated, and the resultant inflation in the money market contributed its share in decreasing the purchasing power of money. Then again, the

laboring classes showed a widespread disinclination to work, even on the railroads, and a veritable epidemic of strikes overtook the laboring classes, the goal of which was, to some extent, the making of improvements in laboring conditions and, to a great degree, the carrying out of communistic and bolshevistic ideas. All these phenomena, especially the inordinate demands by the Entente in the peace treaty, caused values to sink lower and lower, and at the same time, made the importation of necessary food and raw materials all the more difficult.

We now begin to realize how the utmost had been taken out of our railroad equipment everywhere; all reconstruction and repairs which were not absolutely necessary for military efficiency were left untouched.

Added to all these evils was the catastrophal lack of coal. During the winter of 1919-20 the extraordinary interruptions in operating the railroads caused great and unprecedented decrease in freight traffic, and in Bavaria passenger traffic was only 30 per cent of that during time of peace.

Especially serious also was the increase in the number of thefts and robberies of railroad shipments; remuneration for loss of goods increased fifty-fold. While in the first three years of the war, peacetime railroad rates were maintained, and even much lower rates were fixed to keep industries going and food prices down, we had to begin to raise the rates in the second half of the year 1917, especially on freight. The collapse in November, 1918, and the above-mentioned revolutionary activities resulted in continually new increases in rates. The last increase made in March, 1920, of 100 per cent in freight and passenger rates means a total raise of 350 to 670 per cent in the four classes of passenger

tickets, and an increase of about 600 per cent in the freight rates of the prewar period. In spite of all this, the railroad systems are more disorganized than ever before.

The last cause of the great catastrophe which has overwhelmed economic life and communication is the collapse of the military system, the doom of which was sealed by the Treaty of Versailles. It hit the German railroad system hardest. All the railroads in the territory surrendered passed into the hands of their new sovereign. Let me mention the 1,900 kilometers of railroads in Alsace-Lorraine which were surrendered without any indemnification, although the German nation paid a stipulated sum for them in 1871 and since that time has enlarged and improved the network of railroads at great cost. Prussia and the Bavarian Palatinate lose more than 8,000 kilometers of railroads, inclusive of the Saar basin which, for the time being, is surrendered for fifteen years only. Therefore, the German Empire loses one-sixth of its railroads, among them some of the most important and highly developed lines, and in spite of some extensions which have recently been made it now has 53,000 kilometers as compared with 60,000 kilometers at the beginning of the war.

We must also mention the loss of railroads in the German colonies. The entire equipment had to be surrendered. The 5,000 locomotives and 150,000 freight cars demanded in the armistice are not included here. The lines which were changed to German standard gauge during the war must be equipped with everything necessary for their operation. The nation which acquired the railroads in the east must pay the compensation fixed by the Reparation Commission, but the money will be paid not to the owners

of the railroads, but directly to the commission which will credit the sums received to the general reparation account.

The Peace Treaty imposes incisive obligations, obligations which seriously impair the independence and economic development of transportation and communication. The Allies must be given free passage for persons, freight and vehicles on its railroads and waterways. The same privileges accorded to domestic commodities must be accorded their commodities. The harbors of the enemy enjoy all the tariff benefits of the German seaports. German internal revenue laws must also apply to any foreign goods exported, imported or in transit. Therefore, Germany is deprived not only of any independent maritime benefits but also of all possibility of passing any special internal revenue laws or special legislation designed to aid any particular district, because all these laws would accrue to the equal benefit of foreign nations.

The overthrow of the German government brought with it a fundamental change in the relation between the several states and the nation with the consequent result that the national government became all the stronger. According to our constitution, all railroads and waterways which are common carriers become the property of the nation; likewise the postal and telegraph systems of Bavaria and Württemberg.

All the German state railroads were nationalized on April 1, 1920, at a fixed valuation. The several states were permitted to decide whether the purchase price should be determined by the capital invested or the arithmetical mean between the invested capital and the earning capacity plus any deficits on the state railroads since 1914. The financial effect of the

transfer of the state roads to the nation was unfavorable.

No time limit has been fixed for the transfer of the private railroads acting as common carriers. Railroads of the third-class and street railways remain the property of the several states. These enterprises are affected most by the social and economic revolutions in Germany. Many private roads are in danger of bankruptcy and financial collapse; a large number of private city railways and third-class railroads had to be shut down because an effective increase in revenues could not be expected from a further increase in fares.

Like the state railroads, the postal and telegraph systems of Bavaria and Württemberg also passed in the hands of the national government. The national postal administration is struggling like the national railroad administration. Its deficit for 1920 is estimated at two billion marks in spite of manifold increase of postal, telegraph and telephone rates.

The international waterways of Germany are to be taken over by the state on April 1, 1921, but no agreement on the subject has as yet been reached. The Treaty of Versailles internationalizes the Elbe, Oder and Memel, so far as they are navigable, and the Danube below Ulm. Numerous ships and shares in the Rhine Navigation Company must be surrendered by Germany. Freight rates on the inland waterways, which formerly were much lower than railroad freight rates, are now materially higher than the latter.

The Treaty of Versailles has annihilated the flourishing German merchant marine. All ships of over 1,600 tons must be surrendered *in toto*, and one-half of those between 1,000 and 1,600 tons; in addition, Germany must build in her remaining shipyards ships

to the amount of 200,000 tons, and a big share of the fishing fleet must also be surrendered.

PROGRAM FOR RESTORATION

The most serious problem which any country has had to face at any time is how to face famine and the catastrophic deficit of the railroads. A deficit of fifteen billion marks, such as the railroads must face in the fiscal year 1920, and especially in an industry which in peace times had a surplus of three and one-half billion marks is catastrophic to any nation's finances; or, if one should attempt to liquidate it by increasing rates, then our entire economic fabric would be jeopardized.

The consolidation of the German state railroads into the national railroad system has contributed materially to the deficit in the entire railroad budget. To be sure, decrease in railroad equipment has resulted in certain savings in the railroad budget, but these are more than offset by the enormous increase in expenditure resulting from the great levelling process due to the compulsory state consolidation of the railroads.

The German state railroads had already, by way of voluntary agreement, introduced such far-reaching consolidation in the most important departments, in freight car service, in distribution and equalization of passenger coaches, in rates and in accounting systems, that complete financial consolidation was really no longer a step forward; on the contrary, there is danger that the vanishing of the financial interests of the members of the directorate, the increasing centralization and the growing dependence of the administration in the several districts, may have unfavorable effects on the profitable management of the entire railroad system of the nation.

There are those who regard the con-

solidation of the railroads into a national system as a mistake. They say that the brilliant development of the German railroads before the outbreak of the war was due, to a great degree, to the independence of the several railroad directorates. They point to the United States as an illustration where competition was always fostered, anti-trust laws enforced, and the Transportation Act of February 28, 1920, passed, which provided for the organic consolidation of whole railroad systems into large independent groups in order to encourage competition. Following American precedent for the national railroad system, these men demand the introduction of railroad management with far-reaching independence of action. A large part of the drawbacks and dangers necessarily associated with unification and centralization will doubtless vanish under the plan suggested. It would also simplify the administrative machinery, strengthen initiative and responsibility of its members, and quicken the rivalry of brains in technical progress. The creation of such an organization which will make decentralization a reality will therefore have to be considered first when steps are taken to bring about the restoration of our railroads to a sound basis.

The restoration of "autonomous" management of the national railroad system is another item in the program for the reorganization of the German railroads. It is intended to put the railroad administration beyond the reach of state financial control and political and parliamentary influences. Instead, the employes, particularly those who are interested in management and supervision, shall be strongly represented at all times. There should also be a most comprehensive and coördinating regulation of all lines of transportation and communication,

railroads, post-offices, intra-navigation, air service and motor trucks in the several economic districts, and, at the same time, of the supply of light, power, and raw material.

In addition to the demands made by the first representatives of German economic thought, the specialists propose simplification in everything, *e.g.*, railroad rates, despatching, operation and passenger traffic, by introducing a two-class system (the upholstered car and the car with wooden seats, instead of the present four-class system), fifty-ton cars with four axles, improvement in the relation between commodities and dead weight for freight, equipment of all freight cars with American style air-brakes, the reintroduction of agreement and premiums (or bonuses), sharing of profits by all the employes, if possible, and at the same time, a realization of the principles of scientific management according to Taylor's principles.

Measures of great importance, as, for example, the construction of a vast system of waterways (building the connecting link of inland canal between Hannover and Magdeburg, in order to complete the network of canals in Prussia connecting the Main and the Danube in Bavaria and the Neckar and Danube), and the full utilization of water power and the electrification of the railroads are being taken to save coal and labor. We are already attacking these problems with tenacious energy. The nation and the states have appropriated considerable sums of money and have begun work on them.

But if these projects were completed they would, nevertheless, not be sufficient to overcome all of our enormous problems in transportation. Germany can never master all the deeper-lying causes of these difficulties. First and foremost is the lack of coal and

raw materials, due to the enormous shortage of labor caused by the losses in war and the shortage of merchandise resulting from the four and one-half years of idleness in our industries. It is intensified to the extreme by the demands of the Spa conference of July last for 200,000 tons of coal per month. This coal shortage means a curtailment of train service, hampering economic life. The lack of coal and the consequent increase in price of coal (at the present time fifteen times as high as before the war) is the cause of the high price and shortage of almost all other raw materials, and especially of iron. The price of coal, the lowering of the output of our industries for want of coal, and the expensive importation of ores have increased prices of manufactured articles thirty-two to thirty-five fold. The shortage of coal and iron ore was the determining factor in the increase of price on almost all materials needed by our industries, and especially by the railroads.

The shortage and high price of food cause the decline in man-power in every industry; the disinclination on the part of the population to work; syndicalistic and bolshevistic tendencies to strikes; and the wage increases which have not as yet come to a standstill. Before the war, wages on the elevated railroad in Berlin rose from 52 pfennigs per hour to 3.67 marks; the average income of employes on the state railroads of Bavaria leaped from 1840 marks per year before the war to 12,600 marks in 1920—in both cases a seven-fold increase.

The third main cause for high prices in Germany is the depreciation of values which is caused chiefly by the Treaty

of Versailles. In the section on Reparations, the Treaty imposes enormous conditions on Germany. Germany must hand over to the Entente, without any return, a huge part of its total exports which it should otherwise have used to pay for urgently needed foreign goods. At the same time, the elasticity of the Versailles instrument affords the Allied powers a means of increasing Germany's burdens as occasion arises and as soon as Germany's economic life has grown slightly stronger.

The depreciation in values makes the importation of raw materials and foodstuffs difficult (in 1913 Germany imported 72.8 million tons, and in 1920 twelve million tons); and so each of the aforesaid causes reacts on the rest and increases the hopelessness of the situation. The resultant unspeakable embitterment of a large part of the populace harbors the constant danger of serious revolutionary shocks to our national and economic life. If these outbreaks in Germany should lead to greater revolutions, it is certain that they would not be confined to Germany. The communist-bolshevistic wars which are sweeping over the nations of the earth are a result of the World war and the universal economic and social political crisis following in its wake. Such crises may develop into a colossal danger to modern civilization, and it can only be exercised when once the civilized nations of the earth become convinced of the solidarity of their interests, and when it begins to dawn on them that all peoples need universal coöperation to heal the wounds of the Great War, of which none of the countries participating was the sole cause.